

What is Claimed is:

1. A rotational position detecting sensor-equipped motor comprising:

a motor section including a motor stator and a motor rotor;

a revolving shaft to which said motor rotor is coupled;  
a bearing structure for rotatably supporting said revolving shaft; and

a rotational position detecting sensor for detecting a rotational position of said revolving shaft;

said bearing structure, revolving shaft, motor section and rotational position detecting sensor being arranged so as to be concentric with each other in a radial direction of said revolving shaft.

2. A rotational position detecting sensor-equipped motor as defined in claim 1, wherein said motor section is arranged outwardly in said radial direction with respect to said rotational position detecting sensor.

3. A rotational position detecting sensor-equipped motor comprising:

two rotational position detecting sensor-equipped motors each including a motor section including a motor stator and a motor rotor, a revolving shaft to which said motor rotor is coupled, a bearing structure for rotatably supporting said revolving shaft, and a rotational position detecting sensor for detecting a rotational position of said revolving shaft;

said rotational position detecting sensor-equipped motors being combined with each other so as to permit said revolving shafts to be concentric with each other;

at least one of said rotational position detecting sensor-equipped motors being so constructed that said bearing structure, revolving shaft, motor section and rotational position detecting sensor may be arranged so as to be concentric with each other in a radial direction of said revolving shaft.

4. A rotational position detecting sensor-equipped motor as defined in claim 3, wherein said bearing structure

of one of said rotational position detecting sensor-equipped motors is arranged between said revolving shafts arranged concentrically with each other, to thereby permit rotation of said revolving shafts; and

said bearing structure of the other rotational position detecting sensor-equipped motor is arranged between one of said revolving shafts which is inwardly arranged and a cylindrical bearing bushing arranged concentrically with said one revolving shaft and fixed on a motor frame.

5. A biaxial motor comprising:

a first rotational position detecting sensor-equipped motor including a motor section including a first motor stator and a first motor rotor, a first revolving shaft to which said first motor rotor is coupled, a first bearing structure for rotatably supporting said first revolving shaft, and a first rotational position detecting sensor for detecting a rotational position of said first revolving shaft;

a second rotational position detecting sensor-equipped motor including a motor section including a second motor stator and a second motor rotor, a second revolving shaft to which said second motor rotor is coupled, a second bearing structure for rotatably supporting said second revolving shaft, and a second rotational position detecting sensor for detecting a rotational position of said second revolving shaft;

said first and second revolving shafts being arranged concentrically with each other so that said first revolving shaft is positioned outside said second revolving shaft and said first and second revolving shafts are rotated about a common central line;

a motor frame including first and second side walls positioned on either side of said central line and a peripheral wall positioned between said first side wall and said second side wall and arranged concentrically with said central line;

said first bearing structure being disposed between said first revolving shaft and said second revolving shaft;

said second revolving shaft including a revolving shaft

body arranged so as to project from said first revolving shaft toward one side in an axial direction thereof;

a bearing bushing arranged outside said revolving shaft body so as to be concentric with said second revolving shaft and fixed on said motor frame;

said second bearing structure being arranged between said second revolving shaft and said bearing bushing;

a first rotation frame which is fixed on said first revolving shaft and to which said first motor rotor and a first sensor rotor of said first rotational position detecting sensor are fixed; and

a second rotation frame which is fixed on a portion of said second revolving shaft positioned between said first bearing structure and said second bearing structure and to which said second motor rotor and a second sensor rotor of said second rotational position detecting sensor are fixed;

said first rotation frame including two mounted portions which are arranged so as to extend toward said first side wall of said motor frame and be spaced from each other outwardly in said radial direction and on which said first motor rotor and first sensor rotor are respectively mounted;

said second rotation frame including two mounted portions which are arranged so as to extend toward said second side wall of said motor frame and be spaced from each other outwardly in said radial direction and on which said second motor rotor and second sensor rotor are respectively mounted;

said first side wall of said motor frame having a first sensor stator which corresponds to said first sensor rotor fixed thereon;

said second side wall of said motor frame having a second sensor stator which corresponds to said second sensor rotor fixed thereon;

said peripheral wall of said motor frame having said first and second motor stators which correspond to said first and second motor rotors fixed thereon.

6. A biaxial motor as defined in claim 5, wherein said

first and second sensor stators are fixed on said first and second side walls, respectively, so that an angular position thereof with respect to said motor section may be externally adjusted.

7. A biaxial motor comprising:

a motor frame including first and second side walls fixed on both sides in an axial direction of a fixing shaft;

a first revolving shaft and a second revolving shaft positioned between said first side wall and said second side wall and arranged concentrically with said fixing shaft through a first bearing structure and a second bearing structure;

said first and second revolving shafts being arranged so as to be aligned with each other in the axial direction of said fixing shaft;

first and second rotation frames fixed on said first and second rotation shafts, respectively;

a first rotational position detecting sensor including a first sensor rotor provided on one of said first revolving shaft and first rotation frame and a first sensor stator arranged on said first side wall so as to correspond to said first sensor rotor and functioning to detect a rotational position of said first revolving shaft;

a first motor section including a first motor rotor provided on the other of said first revolving shaft and first rotation frame and a first motor stator provided on said first side wall so as to correspond to said first rotor and functioning to apply rotational force to said first revolving shaft;

a second rotational position detecting sensor including a second sensor rotor provided on one of said second motor revolving shaft and rotation frame and a second sensor stator provided on said second side wall so as to correspond to said sensor rotor and functioning to detect a rotational position of said second revolving shaft;

a second motor section including a second motor rotor provided on the other of said second revolving shaft and second

rotation frame and a second motor stator provided on said second side wall so as to correspond to said second motor rotor and functioning to apply rotational force to said second revolving shaft;

said first bearing structure, said first revolving shaft, one of said first rotational position detecting sensor and first motor section, and the other of said first rotational position detecting sensor and first motor being arranged so as to be aligned with each other outwardly in a radial direction of said fixing shaft, resulting in constituting a first rotational position detecting sensor-equipped motor;

said second bearing structure, said second revolving shaft, one of said second rotational position detecting sensor and second motor section, and the other of said second rotational position detecting sensor and second motor being arranged so as to be aligned with each other outwardly in said radial direction of said fixing shaft, resulting in constituting a second rotational position detecting sensor-equipped motor;

a first output plate arranged so as to extend outwardly in a radial direction of said first revolving shaft from a space defined between said first rotational position detecting sensor-equipped motor and said second rotational position detecting sensor-equipped motor;

said first output plate being fixed on said first revolving shaft of said first rotational position detecting sensor-equipped motor and said first rotation frame, to thereby be rotated with said first revolving shaft; and

a second output plate arranged so as to extend outwardly in a radial direction of said second revolving shaft from said space;

said second output plate being fixed on said second revolving shaft of said second rotational position detecting sensor-equipped motor and said second rotation frame, to thereby be rotated with said second revolving shaft.

8. A biaxial motor as defined in claim 7, wherein said

first and second rotational position detecting sensor-equipped motors are so constructed that said first and second rotational position detecting sensors are positioned inwardly of said first and second motor sections; and

    said second rotational position detecting sensor of said second rotational position detecting sensor-equipped motor is arranged in proximity to said second side wall rather than said second motor section so as to define said space.

9. A biaxial motor as defined in claim 8, wherein said first sensor rotor is mounted on said first revolving shaft and said first motor rotor is mounted on said first rotation frame;

    said second sensor rotor is mounted on said second revolving shaft and said second motor rotor is mounted on said second rotation frame;

    said first sensor stator and first motor stator are mounted on said first side wall;

    said second sensor stator and second motor stator are mounted on said second side wall; and

    said first and second sensor stators are mounted on said first and second side walls so that adjustment thereof may be carried out externally in said axial direction of said fixing shaft.